13. Radio Frequency Exposure

13.1. Applicable Standards

The measurements shown in this test report were made in accordance with the procedures given in FCC Part 2 (Section 2.1091)

KDB 447498

13.2. EUT Specification

Frequency band (Operating)	☐ WLAN: 2412MHz ~ 2462MHz ☒ WLAN: 5150MHz ~ 5250MHz ☐ WLAN: 5250MHz ~ 5350MHz ☐ WLAN: 5470MHz ~ 5725MHz ☐ WLAN: 5725MHz ~ 5850MHz ☐ Bluetooth: 2402MHz ~ 2480MHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A
Remark: 1. The maximum output power is 16.28dBm (0.0249mW) at 5230MHz (with numeric 4.7 antenna gain.) 2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance. 3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.	

13.3. Test Results

No non-compliance noted.

13.4.Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where E = Field strength in Volts / meter

P = Power in Watts
G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ **Equation 1**

Where d = Distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

13.5.Maximum Permissible Exposure

Max. output power	Band: 5150MHz ~ 5250MHz 802.11a: 16.26dBm (0.0248mW) 802.11an VHT20: 16.24dBm (0.0247mW) 802.11an VHT40: 16.23dBm (0.0246mW) 802.11ac VHT20: 16.26dBm (0.0248mW) 802.11ac VHT40: 16.28dBm (0.0249mW) 802.11ac VHT80: 16.20dBm (0.0245mW)
Antenna gain (Max)	4.8dBi

Maximum Permissible Exposure

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm2)	Limit (mW/cm2)
802.11a	5150-5250	16.26	4.7	20	0.0248	1
802.11an HT20	5150-5250	16.24	4.7	20	0.0247	1
802.11an HT40	5150-5250	16.23	4.7	20	0.0246	1
802.11ac VHT20	5150-5250	16.26	4.7	20	0.0248	1
802.11ac VHT40	5150-5250	16.28	4.7	20	0.0249	1
802.11ac VHT80	5150-5250	16.20	4.7	20	0.0245	1

Maximum Permissible Exposure (Co-location)

Non-Beamforming

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm^2)
2.4G 11ac VHT20	2412-2462	29.23	4.4	20	0.4586
5G 11ac VHT40	5725-5850	24.58	4.71	20	0.1690
Co-location Total					0.6276
Maximum Permissible Exposure Limit					1

Beamforming

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm^2)
2.4G 11ac VHT20	2412-2462	26.22	7.16	20	0.4330
5G 11ac VHT20	5725-5850	21.57	7.71	20	0.1686
Co-location Total					0.6016
Maximum Permissible Exposure Limit					1